

BIOLOGICAL INVESTIGATIONS OF THE DEEP SEA. 36.
THE EEL, *NETTODARUS BREVIROSTRIS*,
IN THE WESTERN ATLANTIC¹

JAMES E. BÖHLKE
*Chaplin Chair of Ichthyology,
Academy of Natural Sciences of Philadelphia*

AND

C. RICHARD ROBINS
*Institute of Marine Sciences,
University of Miami*

ABSTRACT

Nettodarus brevirostris (Facciola) previously known only from Sicily is recorded from western Atlantic waters near Miami, Florida. The characters and synonymy of the species, which is retained in the monotypic family Nettodaridae, are reviewed. The family is placed close to the Dysommidae in the group of families that include the Myrocongridae, Xenocongridae and Muraenidae.

Recent collections in the Straits of Florida have yielded many fishes new to the area. Robins & Robins (1967) discussed the first western Atlantic specimens of *Chlopsis bicolor* Rafinesque, an eel previously known only from Sicily except for recent records of larvae from the Gulf of Guinea by Castle (1966). We now record a second unusual eel from the Miami region of the Straits of Florida. This eel, *Nettodarus brevirostris* (Facciola), also was known, until now, only from the Mediterranean Sea. This paper documents the record, adds to the descriptive information, and comments on the relations of the monotypic family Nettodaridae. Numerous subsequent collections in the region failed to yield additional specimens of *Nettodarus*. The program of research on the fish fauna of the Straits of Florida, C. Richard Robins, principal investigator, is supported by the National Science Foundation (NSF-GB-1350, GB-4389) with ship-time support through NSF-GB-1204.

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Nettodarus Whitley

Todarus Grassi & Calandruccio, 1896: 349 (type species: *Nettastoma brevirostre* Facciola, 1887, by monotypy; preoccupied by *Todarus* Rafinesque, 1840: 64, a cephalopod).

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Nettodarus Whitley, 1951: 407 (substitute name for *Todarus* Grassi & Calandruccio, 1896, and therefore taking the same type species).

When Whitley proposed the name *Nettodarus*, he also created the new family name, Nettodaridae, and we follow him in the use of that name.

The continued inclusion of *brevirostris* in the monotypic family Nettodaridae seems justified at the present, largely analytical, stage of eel classification. This family may be placed near the Dysommidae in particular, but it also is related to the Myrocongridae (see Robins & Robins 1966: 122) and the Xencongridae, families that are themselves related to the Muraenidae.

Nettodarus brevirostris (Facciola)

Nettastoma brevirostre Facciola, 1887: 166 (type locality: Sicily, near Messina).—Carus, 1893: 543 (characters summarized).—Griffini, 1903: 171 (compiled).

Todarus brevirostris, Grassi & Calandruccio, 1896: 349 (placed in new genus *Todarus*; the generic and specific names not actually used together in this paper, but such a combination implied).—Supino, 1905: 255-259 (detailed description of specimen from Sicily).—Grassi, 1913: 29, 170, pl. 10 (probable larval stages described and figured; development; caudal structure).

Nettodarus brevirostris, Whitley, 1951: 407 (placed in new genus, *Nettodarus*).

Description.—Excellent general descriptions and illustrations of *brevirostris* have been given by Supino (1905) and by Grassi (1913), and this information applies to the Florida specimen as well.

The body is strongly compressed, ribbon- or band-like posteriorly. The ventral edge of the body near the tail tip is dusky. The rest of the body and the head are a uniform brown except for the mid-dorsum and the dorsal fin which are pale.

The dorsal-fin origin is immediately behind the level of the last lateral-line pore, a little more than the length of the snout behind the gill opening. The anal fin originates immediately behind the anus. The dorsal, anal, and caudal fins are continuous. The gill opening is small and placed ventrally so that the two are close together and parallel, separated by a distance only slightly broader than the opening itself. There is no trace of a pectoral fin. There is no tongue. Measurements expressed in per cent of total length (209 mm) of the Florida specimen are as follows: Eye diameter 0.57, snout length 2.0, gape 2.8, head length (to anterior margin of gill opening) 7.4, snout tip to dorsal-fin origin 10, snout tip to anus 18, depth at gill opening 2.3, depth at anus 2.4. There are 203 vertebrae.

A short lateral line is present anteriorly on the body, there being ten pores on the left side, with the gill opening falling below pores four and five. The two sides are asymmetrical, for although there also are ten pores on the right side their spacing is irregular anteriorly with the gill opening lying below pore three. The infraorbital branch of the cephalic lateral-line system opens through four pores: one below the eye, one just in front of a vertical with the anterior margin of the eye, one before the hood fronting the posterior nostril, and one just behind the posterior margin of the anterior nostril. There are six pores in the mandibular portion of the preoperculo-mandibular canal, spaced progressively farther apart from front to rear. The two anterior pores open through tubes; the posterior four are simple openings, the first located below the posterior nostril, the second posteriorly on the dentary, and the last two behind the angle of the gape.

A diagnostic feature of *brevirostris* is the bulbous snout which is excessively adorned with fleshy tabs, ridges and papillae. Both nostrils are broad based, the anterior tubular and at the level of the tip of the lower jaw, the posterior in front of the lower half of the eye, with a fleshy hood in front and below but not covering the opening.

The teeth in the roof of the mouth consist of an anterior pair followed by a median row of five, enlarged, spaced canines, exactly as illustrated by Supino (1905: figs. 4 and 5). Similarly, the teeth of the lower jaw are as illustrated by Supino (1905: fig. 6), with three lateral canines anteriorly followed by a row of tiny teeth. We are unable to find any small teeth along the upper jaw in contrast to the findings of Supino.

Range.—*Nettodarus brevirostris* is known only from the Mediterranean Sea and from the Miami region of Florida. We anticipate a wide, if spotty, distribution for this small eel.

Material.—ANSP 108623 (formerly UMML 12450, 1 specimen, 209 mm total length), 25°31'30"N, 79°57'–56'W in 351 meters, 26 Sept., 1962, R/V GERDA sta. 67, by trawl net.

SUMARIO

LA ANGUILA, *Nettodarus brevirostris*, EN EL ATLANTICO OCCIDENTAL

Nettodarus brevirostris (Facciola), que previamente era conocida sólo en Sicilia, es reportada en aguas occidentales del Atlántico cerca de Miami, Florida. Se revisan los caracteres y la sinonimia de la especie, que permanece en la familia monotípica Nettodaridae. La familia es situada cerca de Dysommidae, en el grupo de familias que incluye Myrocongridae, Xencongridae y Muraenidae.

LITERATURE CITED

CARUS, JULIUS VICTOR

1893. Prodrromus faunae Mediterraneae . . . Stuttgart, vol. 2, ix + 854.

CASTLE, P. H.

1966. Die ichthyologische Ausbeute der ersten Westafrika-Fahrt des fischereitechnischen Forschungsschiffes "Walther Herwig". 3. The eel larvae (Leptocephali). Archiv f. Fischerei, 17(1): 19-35, 3 figs.

FACCIOLÀ, LUIGI

1887. Intorno a due Lepadogastrini ed un nuovo *Nettastoma* del mare di Sicilia. Il Naturalista Siciliano, 6(9): 163-167.

GRASSI, GIOVANNI BATTISTA

1913. Metamorfosi dei murenoidi. Ricerche sistematiche ed ecologiche. Regio Comitato Talassogr. Italiano, Monogr. 1: x + 211, 15 pls.

GRASSI, GIOVANNI B. AND SALVATORE CALANDRUCCIO

1896. Sullo sviluppo dei murenoidi. Atti Reale Accad. Lincei, Roma, Ser. 5, 5(1): 348-349.

GRIFFINI, ACHILLE

1903. Ittiologia italiana. Descrizione dei pesci di mare e d'acqua dolce. Milano, xii + 475, 244 figs.

RAFINESQUE, C. S.

1840. The good book, and amenities of nature, or annals of historical and natural sciences. Containing selections, of observations, researches and novelties in all the branches of physical and historical knowledge, with letters of eminent authors - chiefly on zoology, botany, agronomy, geognosy, ethnography . . . or organized beings and fossils, nations and languages. [From title page, the title on cover somewhat different.] Philadelphia, No. 1: 1-84, a separate atlas of plates is announced.

ROBINS, C. RICHARD AND CATHERINE H. ROBINS

1966. *Xenoconger olokun*, a new xenocongrid eel from the Gulf of Guinea. In: The R/V PILLSBURY deep-sea biological expedition to the Gulf of Guinea. Stud. Trop. Oceanogr. Miami, 4(1): 117-124, 3 figs.

ROBINS, CATHERINE H. AND C. RICHARD ROBINS

1967. The xenocongrid eel *Chlopsis bicolor* in the western North Atlantic. Bull. Mar. Sci., 17(1): 232-248, 8 figs.

SUPINO, FELICE

1905. Il *Todarus brevirostris* Gr. e Cal. Ric. Lab. Anat. Comp. norm. Roma, 11(3): 255-259, 6 figs.

WHITLEY, GILBERT P.

1951. Studies in ichthyology. No. 15. Rec. Australian Mus., 22(4): 389-408.